

## Appendix I

## COMMON AND SCIENTIFIC NAMES OF PLANTS

Common name	Scientific name
Alpine Foxtail	<i>Alopecurus alpinus</i>
Alpine Fir	<i>Abies lasiocarpa</i>
Arnica	<i>Arnica</i> spp.
Balsamroot	<i>Balsamorhiza sagittata</i>
Barley, Meadow	<i>Hordeum brachyantherum</i>
Barley, Wild	<i>Hordeum</i> spp.
Blue-eyed Mary	<i>Collinsia parviflora</i>
Bluegrass	<i>Poa</i> spp.
Bluegrass, Alpine	<i>P. alpina</i>
Bluegrass, Canby	<i>P. canbyi</i>
Bluegrass, Cusick	<i>P. cusickii</i>
Bluegrass, Kentucky	<i>P. pratensis</i>
Bluegrass, Sandberg	<i>P. secunda</i>
Bluegrass, Timberline	<i>P. rupicola</i>
Cinquefoil	<i>Potentilla</i> spp.
Cinquefoil, Northwest	<i>P. gracilis</i>
Cinquefoil, Shrubby	<i>P. fruticosa</i>
Clover	<i>Trifolium repens</i>
Dandelion	<i>Taraxacum</i> spp.
Dwarf Huckleberry	<i>Vaccinium scoparium</i>
Engelmann Spruce	<i>Picea engelmanni</i>
Eriogonum	<i>Eriogonum</i> spp.
Eriogonum, Sulfur	<i>E. umbellatum</i>
Geranium	
Giant Wild-rye	<i>Elymus cinereus</i>
Groundsel	<i>Senecio</i> spp.
Horsetail	<i>Equisetum</i> spp.
Idaho Fescue	<i>Festuca idahoensis</i>
Junegrass	<i>Koeleria cristata</i>
Lupine	<i>Lupinus</i> spp.
Mountain Brome	<i>Bromus marginatus</i>
Needle-and-Thread	<i>Stipa comata</i>
Needlegrass	<i>Stipa</i> spp.
Needlegrass, Columbia	<i>S. columbiana</i>
Needlegrass, Richardson	<i>S. richardsonii</i>
Onion	<i>Allium rubrum</i>
Phlox	<i>Phlox</i> spp.
Pine, Lodgepole	<i>Pinus contorta</i>
Pine, Whitebark	<i>P. albicaulis</i>
Pinegrass	<i>Calamagrostis rubescens</i>
Purple Onion Grass	<i>Melica spectabilis</i>
Pussytoes	<i>Antennaria parvifolia</i>
Raspberry	<i>Rubus</i> spp.

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Common name	Scientific name
Red Dogwood	<i>Cornus stolonifera</i>
Rush	<i>Juncus</i> spp.
Rush, Long-styled	<i>J. longistylus</i>
Rush, Slender	<i>J. tenuis</i>
Rush, Wire	<i>J. balticus</i>
Sagebrush	<i>Artemisia</i> spp.
Sagebrush, Big	<i>A. tridentata</i>
Sagebrush, Fringed	<i>A. frigida</i>
Sedge	<i>Carex</i> spp.
	<sup>a</sup> <i>C. acuta</i>
	<i>C. aperta</i>
	<i>C. aquatilis</i>
	<i>C. athrostachya</i>
	<i>C. nova</i>
	<i>C. platylepsis</i>
	<i>C. raynoldsii</i>
	<i>C. xerantica</i>
	<i>C. rostrata</i>
	<i>C. hepburnii</i>
	<i>C. nebraskensis</i>
	<i>C. festivella</i>
	<i>C. foenea</i>
	<i>C. microptera</i>
	<i>C. vallicola</i>
	<i>C. lanuginosa</i>
	<i>Amelanchier</i> spp.
	<i>Eleocharis macrostachya</i>
	<i>Hierochloa odorata</i>
	<i>Danthonia intermedia</i>
	<i>Phleum pratense</i>
	<i>P. alpinum</i>
	<i>Deschampsia caespitosa</i>
	<i>Scirpus acutus</i>
	<i>Agropyron</i> spp.
	<i>A. spicatum</i>
	<i>A. smithii</i>
	<i>A. trachycaulum</i>
	<i>A. dasystachyum</i>
	<i>Salix</i> spp.

<sup>a</sup>Not listed in Booth (1950), but determined by him (1968 pers. comm.)

## Appendix II

## SUMMARY OF BISON REPORTS PRIOR TO 1903, YELLOWSTONE NATIONAL PARK AND VICINITY

Source	Date	Report
Raynolds (1867)	25 June 1860	crossed Low Pass from Henry's Lake to the Madison (west of Yellowstone National Park) "We have seen one band of buffalo among the hills, . . ."
DeLacy (1876)	7 Sept. 1863	eastern side of Shoshone Lake "through scrubby pines, without underbrush. There were many game trails made by the wood buffalo, whose tracks appeared numerous and fresh. We did not see any . . ."
Haines (1968 pers. comm.)	1860s	quotes local newspapers of the period as saying there was a herd of bison in the Snowy's (north of park, part of Absarokas).
Potter (1962)	1867	south end of Yankee Jim Canyon (north of Gardiner, Mont.) "That whole flat would be covered with buffalo." " 'all this buffalos',"
Cook, et al (1869)	3 October 1869	reference to Buffalo Pool, Lower Geyser Basin (Firehole area) "in one spring we saw the entire skeleton of a buffalo . . ."
Henderson (1870)	21 June 1870	Buffalo Plateau (north edge of park) "thousands of buffalo quietly grazing."
	27 June 1870	upper Buffalo Creek (north edge of park) "All game plenty—buffalo, . . ."
	2 July 1870	Lake Abundance (just beyond northeast corner of park) "Thousands of bear, elk, buffalo, and deer."
	17 July 1870	N. Fork of Clark's Fork (Broadwater River, east of northeast corner of park) "several beautiful parks, full of buffalo,..."
	22 July 1870	Cache Creek (Lamar area) "thro buffalo, elk & bear . . . all very tame."
	24 July 1870	Specimen Ridge (north edge Mirror Plateau) "Buffalo . . ."

Source	Date	Report
	8 August 1870	summit between Buffalo Cr. and Hell-roaring (north edge of park) "Saw several buffalo."
	9 August 1870	head of Middle Boulder River (north of Park) "Thousands of buffalo, . . ."
Doane (1875)	18 Sept. 1870	Old Faithful (Firehole area) "numerous fresh signs of buffalo . . ."
Barlow and Heap (1872)	2 August 1871	Lower Geyser Basin (Firehole area) "Across the plain to the west . . . mud springs in ravine . . . tracks of deer, elk and buffalo . . ."
Blackmore (1872)	1872	Lamar "B.H. informs me that this valley is a favorite resort of the mountain buffalo or bison. The hills on the left were the last place that he saw the buffalo this spring followed them for nearly 30 miles and captured during his hunt 7 young calves... informs me that the M.B. congregate in bands of from 5-30 rarely more altho he has seen 50 . . ."
LeHardy (1873)	1873 (about mid-August)	"The valley of the East Fork [Lamar] extends Eastward very straight for many miles, the floor . . . deeply covered with grass. In this grass we saw in the distance quite a number of Buffalo."
Jones (1875)	1873	found bison bones embedded in soil at the bottom of a cave at Mammoth
Dunraven (1876)	1874	general locale of Yellowstone National Park. "On the little prairies, open glades, and sparsely wooded slopes, grazes the small mountain bison or buffalo, whose race has also nearly vanished from the scene; . . ."
Grinnell (1876)	1875	"The so-called 'Mountain Buffalo' was abundant in the Yellowstone Park."
Supt. Annual Report (1877)	1875	"scores if not hundreds of moose and bison were taken out of the park in the spring of 1875, . . ."

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Source	Date	Report
	1877	refers to the triangle of land with the East Fork (Lamar) as the base, extending south 50 miles to the head of Yellowstone Lake (Mirror Plateau, Pelican) "Here is still a herd of three or four hundred of the curly, nearly black bison or mountain buffalo."
Holmes (1878)	1878	Twin Buttes (Firehole area) "there are some upland parks in which there are buffalo signs (the Mountain Bison)."
Raymond (1880)	1880?	"whitened skeleton of a mountain buffalo . . ." (in a hot pool — Firehole area)
Supt. Annual Report (1880)	1880	"Bison or Mountain Buffalo" "Bison, so called, in the Park, are somewhat smaller, of lighter color, less curly, and with horns smaller and less spreading than those of the bison that formerly inhabited the great parks of Colorado. They have also smaller shoulder humps, and larger, darker brisket wattles. They differ materially from the buffalo of the Great Plains, being more hardy, fleet, and intelligent; their hides also are more valuable for robes, as they are darker, finer, and more curly; and these animals are, in all probability, a cross between the two varieties just mentioned. "There are about three distinct or separate herds of bison within or adjacent to the Park. [north edge of park] "The first, numbering about two hundred, pasture in summer in the valleys of the Crevice, Hellroaring, and Slough Creeks, and the mountain spurs between them, descending, with the increasing snows, to winter in the deep, sheltered grassy valleys of the East Fork [Lamar] of the Yellowstone and Soda Butte, and as the snows melt, accompanied by their young, returning to their old haunts. [Mirror Plateau and Upper Lamar] "The second, numbering over one hundred, summer in the elevated and abruptly

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Source	Date	Report
		broken, little-known section of the Park, extending from the Hoodoo region to the Grand Cañon, and from Amethyst Mountain to Pelican Creek, near the foot of the Yellowstone Lake, and winter occasionally upon the East Fork [Lamar] of the Yellowstone and on Pelican Creek. Their other winter haunts are unknown. [west side of park]
		"The third herd, numbering about three hundred, roams in scattering bands. This season they were discovered upon the Madison Plateau and Little Madison River. Their winter haunts are unknown, though it is probable they are on the Pacific side of the Continental Divide, and, if so, they are not permanent occupants of the Park, and are therefore likely to be slaughtered by advancing settlers.
		"most keen of scent and difficult of approach of all mountain animals."
Yount (1880)	1880	"Here I purpose wintering [junction Soda Butte Cr.-Lamar River] so as to protect the game, especially elk and bison, in their sheltered chosen winter haunts, from the Clark's Fork and other miners."
Yount (1881)	1881	[north edge of park] "The Slough Creek and Hellroaring bands of bison did not venture near the cabin until February, nor did those of Amethyst Mountain at all; . . . I found . . . that a small band of bison wintered on Alum Creek [Hayden Valley] and another on the South Fork [Firehole River] of the Madison River; . . ."
Supt. Annual Report (1881)	1881	Mary Mountain area "It also greatly extended our knowledge of the fire holes in those regions, and afforded proof positive that a band of bison wintered there, at an elevation of nearly 9,000 feet."

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Source	Date	Report
Bozeman Avant-Courier (1883)	11 Jan. 1883 22 Feb. 1883	"at least one band of bison, containing four hundred . . ." There is a reference to the employment of hunters and meat contractors by the Park Improvement Company. refers to Lamar area "Mammoth . . . Feb. 16 . . . Hunting in the Park has been stopped . . . parties . . . contract for Eaton & Co. . . out, being unable to get the meat through from Soda Butte . . . deep snow . . . brought out a fine lot of buffalo meat . . . hunters and meat contractors were ordered in . . . in hot water."
Pierrepoint (1884)	11 Sept. 1884	toward Lake Abundance from Slough Creek (north edge of park) "Five miles to the eastward they ran upon a herd of buffalos numbering about a hundred and eighty, out of which they killed seven . . ."
Hague (1893)	1884	"In 1884 I estimated the buffalo in the Park at 200; . . ."
Livingston Enterprise (1885)	winter 1884-85 March 7  12 Dec. 1885  19 Dec. 1885	"the herd of bison or mountain buffalo that has long inhabited the Yellowstone Mountain slopes and valleys was seen to number two or three hundred in the Park this winter." quotes New York Sun—George Bird Grinnell "There are, to my positive knowledge, not more than 700 bison . . . left . . . About 180 are in Yellowstone . . . I have heard that twenty head were killed in Yellowstone Park by a party of English tourists." claims from a hunter "well posted" that there are 2 bands in the National Park—1 of 40 on Souce (probably Slough) Creek and 90 more or less between the forks of the Madison—supposedly some of the 40 were driven out of the park by use of explosives, and killed.

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Source	Date	Report
Supt. Annual Report (1885)	1885	"The game in the Park had been shot with impunity and marketed at the hotels . . . I succeeded in a measure in breaking up the wholesale slaughter . . . . There is somewhere in the neighborhood of two hundred bison in the Park, . . . "
Supt. Annual Report (1886)	1886	"stopped the wholesale slaughter of game . . . " "From the reports . . . abundance of game [including buffalo] . . . "
Supt. Annual Report (1887)	1887	"A small number of buffalo still remain in the Park, but . . . I am unable to state their number with any . . . accuracy. My impression is that . . . they will not exceed one hundred in number. They are divided into three separate herds. One of these ranges between Hellroaring and Slough Creeks; in summer well up on these streams in the mountains, outside the Park limits, and in the winter lower down on small tributaries of the Yellowstone, within the Park. . . . this herd . . . doubtful if it now exceeds some twenty or thirty in number. . . . Another herd ranges on Specimen Mountain and the waters of Pelican Creek. . . . variously estimated at from forty to eighty. A traveler on the Cooke City road claimed to have counted fifty-four near the base of Specimen Ridge. A scouting party which I sent out during the month of May found but twenty-seven head of this herd, with four young calves . . . The third herd ranges along the continental divide and is much scattered. A band of nine or ten from this herd was seen several times this spring in the vicinity of the Upper Geyser Basin. . . . It is practically certain that none have been killed within the Park limits during the past two years, . . . "



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Source	Date	Report
Supt. Annual Report (1888)	1888	<p>"During the early . . . winter . . . desirable . . . to secure some accurate information concerning the winter haunts of the buffalo . . . .</p> <p>"The herd of buffalo which had passed a portion of the previous winter along Specimen Ridge was not encountered, and the only buffalo encountered on the trip were three in Hayden Valley. . . .</p> <p>Early in April . . . a band of buffalo were located in Hayden Valley and along Alum Creek. . . . a herd of buffalo numbering at least one hundred had passed the winter on the divide between the waters of the Madison and Yellowstone Rivers and in the adjacent valleys. Numbers of these animals have been seen during the spring along the Fire Hole River and its tributaries, and extended investigations have shown that they range in considerable numbers from Alum Creek, in Hayden Valley, across the divide between the waters of the Yellowstone and Madison Rivers and the Continental Divide to Fall River Basin, in the southwestern part of the Park. From the numbers seen and from the quantity of 'sign' observed over an extended area, the number of these animals that range in this portion of the Park can be estimated at not less than two hundred . . . . The large number of young calves and yearlings which have been seen leads to the belief that a natural increase is in progress . . . .</p> <p>. . .</p> <p>"During the past two years, . . . but little game has been killed . . . .</p> <p>. . .</p> <p>"Hunters, stimulated by the high prices offered by taxidermists for specimens, are now lying in wait beyond the borders of the Park ready to pounce upon any unfortunate animal [ref. to bison] which may stray beyond its limits."</p>

Source	Date	Report
Supt. Annual Report (1889)	March 1889	<p>"to visit the warm-spring basins on the east side of Yellowstone Lake, for the purpose of ascertaining whether or not they were the winter resorts of the buffalo. These basins, . . . well-nigh unapproachable, except when the ground is frozen and covered with deep snow, . . . successful in locating the buffalo in their haunts of the previous winter near the hot-spring basins on the divide between the waters of the Yellowstone and Madison Rivers. Although no buffalo were seen east of the Yellowstone, it was evident from the abundant signs that they habitually frequented the hot-spring basins in this locality, some of the signs being quite fresh."</p>
Supt. Annual Report (1890)	1890	<p>"I have no reason to believe that a single animal has been destroyed. . . . First in importance, . . . comes the buffalo. . . . enumeration . . . impossible. . . . In the summer season they are broken up into small bands and scattered over a wide area of timber-covered mountains. . . . In the winter the deep snows drive them to the open country for food. They are then found in large herds."</p>
Supt. Annual Report (1891)	1891	<p style="text-align: center;">"Poachers"</p> <p>"So long as there is no law within the Park for the prevention of hunting and trapping, it will be a most difficult matter to break them up.</p> <p style="text-align: center;">. . .</p> <p>"I am satisfied that both hunting and trapping are carried on . . . from over the western border.</p> <p style="text-align: center;">. . .</p> <p>"I learn of three or four buffalo heads that have been mounted in Bozeman, . . . I doubt not all of these were killed within the Park, or very close to the line without it. . . . fine ones are held at \$400 to \$1,000."</p> <p style="text-align: center;">. . .</p>

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Source	Date	Report
	May 1891	"I have abundant evidence, however, that the buffalo . . . are on the increase. Some tourists who went through the Park in May saw a herd of about 30, with several small calves, near the Trout Creek lunch station."
	July 1891	"In July I sent Wilson out to . . . the west line . . . found two small bands of about 30 each, one with 12 or 15 calves; in addition he saw several single ones and small bunches. I do not think it is exaggeration to say there are 200, and probably there are 400, within the Park, and that they are thriving and increasing."
Hague (1893)	winter 1891-92	"the grazing-ground in Hayden Valley was visited by a snowshoe party, who counted the scattered bands, . . . groups were generally small, and each contained a goodly number of calves. They numbered by actual count nearly 300, but there is no means of knowing what proportion of the Park buffalo were then gathered here."
Supt. Annual Report (1892)	1892	"I was informed that one Pendleton, a butcher and poacher from Cooke City, had captured two buffalo calves on specimen range, and had taken them across the north end of the Park, . . . "there are certainly not less than four hundred here; of these about 20 percent were calves last year. This year, also, the calves seem numerous and prosperous. The great value placed upon them by sportsmen and taxidermists makes their protection difficult, . . ."

Source	Date	Report
Hague (1893)	1893	<p>"That buffalo were among the animals inhabiting the Yellowstone Park was known in the early days of its history; . . . The Park buffalo may all be classed under the head of mountain buffalo, and even in this elevated region they live for the greater part of the year in the timber. . . . their habits are quite different from . . . the buffalo of the plain, and it is most unusual, save in midwinter, to find them in open valley or on the treeless mountain slope. They haunt the most inaccessible and out-of-the-way places, . . . living in open glades and pastures, the oases of the dense forest, often only to be reached by climbing over a tangle of fallen timber . . . the rapidity of their disappearance on being alarmed . . . It is surprising how few buffalo have been seen in midsummer, even by those most familiar with their haunts and habits. They wander about in small bands in such unfrequented country as the southern end of the Madison plateau, the Mirror plateau, and the head of Pelican Creek, and on the borders of that elevated tableland known as Elephant Back. In winter, leaving the forest, they feed over the slopes of Specimen Ridge, and in the open Hayden Valley.</p> <p>"It is not likely that there ever were many buffalo in the Park, . . . If they ever roamed over this country in large herds, evidence of the fact should be apparent by well-trodden buffalo trails, which nowhere form a feature of the Park plateau. . . . They occasionally wander beyond the Park Borders into Idaho and Montana with the first fall of snow, returning to their mountain homes with the approach of spring."</p>

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Source	Date	Report
Supt. Annual Report (1893)	1893	<p>"As the game diminishes in the adjacent States, professional hunters and trappers become more bold and more active. Montana, Idaho, and Wyoming all have stringent game laws, but in spite of them the game grows rapidly less. . . . A stringent law, with severe penalties, is one of the most urgent needs of the Park. . . . Confiscation of the outfit, under existing regulations, has but little effect, as the outfit is generally worthless. "I have pretty reliable information that about a dozen buffalo were killed last winter, and it is not improbable that even more shared that fate. The heads of these were mounted . . . .</p> <p>"The buffalo have been seen often during the year, and they appear to be doing well. In all the herds a fair proportion of calves is found. Those killed have been mostly bulls, so the capacity of the herd for increase has not been diminished. Late in June a herd of fifty to sixty crossed the road from west to east near the Riverside Geyser. Thirteen calves were counted. They were . . . very tame, and not the least scared by the soldiers who went among them. The estimate of four hundred placed on their number last year is surely not too high."</p>
Hough (1894)	spring 1894	<p>"We counted 75 to 85 head of buffalo in Hayden this trip. . . . Sergt. Parker makes the Hayden and Nez Perce district buffalo 81 head. Capt. Scott counted 103 head in Hayden Valley one day three weeks ago. One band of 6 and another of 7 head were seen in the Pelican country, . . . We saw three head in Nez Perce Valley."</p> <p>Hough states that Howell was killing cows and calves, and probably killed, during the winter, more than the 11 known killed at his capture in March, as he had been in Pelican since September. Also Hough states 19 were killed SW of the Park by Indians, fall '93; that 7 other</p>

Source	Date	Report
		heads were offered to a Bozeman taxidermist; that 6 or 8 dead bison were found in Hayden Valley, "John Folsom discovered ten head more of dead buffalo in that same part of the country;" and that "I have track of several other heads." "I think forty buffalo have been killed this fall and winter, and no one knows how many more." "The buffalo do sometimes cross the divide about where we did, and work between the hot country of Mary's Mountain and this sheltered little valley. They have not wintered on the west side of the divide in any numbers for a considerable time. "wild wall of mountains which we saw to the north of the Yellowstone—so desolate and forbidding that even now . . . there may be a few head of bison left over beyond the Bison Peak — . . . "I do not personally believe there are over 150 buffalo left alive in the Park."
Supt. Annual Report (1894)	1894	"not able to report any diminution of poaching . . ." (describes Howell poaching case, with Howell caught killing 5 bison in Pelican, and his cache of 6 additional heads). "The dead bodies of 13 bison have been discovered in their winter range. . . convinced they perished from natural causes." "Buffalo have been more carefully watched and more accurately counted than ever before. After deducting the losses from all causes, I feel disposed to reduce my estimate . . . to 200, . . . A few were seen in their winter range as late as the middle of June, and these had calves with them."

NOTE: Garretson (1938) states that during the winter of 1893-94 most of the buffalo were on the Madison Plateau, that 76 head were killed on the west side, and 40 head in the Gallatin valley. He states that no more than 20 could be counted thereafter. He cites no source for his statements, and while the poaching was undoubtedly heavy that year, neither the losses nor the population figure afterwards were stated as fact by any of the recorders of the time.

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Source	Date	Report
Marble (1932)	no date	mentions Dick Rock (of Henry's Lake, west of the park) catching 5 calves.
Murri (1968)	no date	reference to Dick Rock getting his buffalo calves in the Bechler Meadows in early spring, known to have gotten a pair.
Hofer (1927)	approx. 1894 or 1895	"Hunters from the West Side were getting calves in the early spring and heads in the winter. From near Gardiner three young fellows killed a number in the basin. These were the ones we found when I was with E. Hough . . ." (some of those presumed dead of natural causes).
Supt. Annual Report (1895)	1895	<p>"The act of May 7, 1894, seems to have had . . . effect upon the poachers . . . those of the north, the east, and the south sides have nearly . . . ceased . . . I can not say as much for the Idaho border. . . . So long as the only herd of wild bison now existing in the United States is on the border of this State, . . . inquiry into various rumors of the killing of bison, either in the Park near the Idaho line or across it . . . convinced me that this last remaining herd is in danger of extinction by these people. . . . I have good evidence of the killing of at least ten less than two years ago . . . prior to the passage of the protection act, . . . I have undoubted evidence of the capture of three calves this spring by a resident of Henry's Lake. . . . There are rumors of a herd of nearly one hundred having been seen in Idaho outside the Park within the last two or three months.</p> <p>{Comments that there was less snow than before known, that the large game could pass at will.}</p> <p>"the bison that have heretofore wintered in the Hayden Valley were not massed there this year. The most seen there in a single bunch . . . was about thirty. Small herds of from three to four to ten were seen in widely separated localities</p>

Source	Date	Report
		where they have not usually wintered. I feel sure that many of them did not leave their summer range along the Idaho line. [undetermined losses] . . . but I fear that their number has not increased, . . . estimate . . . two hundred still remain."
Supt. Annual Report (1896)	1896	<p>"I . . . organized three parties for operations against the merciless freebooters of the Henry's Lake country. . . . The ground covered by the buffalo in their summer range was most thoroughly gone over. Carcasses, . . . of about ten buffaloes were found, . . . One party of poachers was encountered, . . . I obtained information . . . buffalo scalps for sale in the city of Butte.</p> <p>"For some reason the main herd did not winter in Hayden Valley as usual, and on the extensive scouts made by my order during the winter months only about a dozen in all were seen. They were scattered singly and in small bunches over a large portion of the Park. Within the last month [July] one party reported a small bunch of 3 in one place, and of 12 in another. A second party reported a bunch of 3 in a valley in a distant part of the park, and tracks of a herd of 8 or 9 more, but this herd was not seen. From reports received, I feel confident that the majority wintered in the extreme southwest corner of park, in the Falls River [Bechler] meadows; and I also feel sure that there are now a considerable number east of the Yellowstone River. . . . fair certainty of the existence of 25 or 30, and possibly of 50."</p>
Snake River Monthly report	21 Aug. 1897	"By way of Summit Lake. Saw sign of about 20 buffalo . . ." (Madison Plateau)
Whittaker (1897-99)	14 Nov. 1897	sign of 5, Mary Mountain area (Hayden Valley)
	18 Nov. 1897	sign of 2, Astrigent Creek (Pelican Valley)



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Source	Date	Report
Supt. Annual Report (1897)	1897	<p>"game, buffalo excepted, is increasing.          "The number of buffalo is estimated at 24.          "the buffalo remaining in the park are now scattered in very small herds at a number of points far remote from each other. They are mostly in rough rugged regions, . . .</p> <p>. . .</p> <p>"But very few buffalo have been reported this season. The scouts, however, seldom see much sign in the summer, and now the few remaining buffalo are scattered and range in the most remote and inaccessible parts of the park in summer. I am confident of finding 25 this winter, when the snowshoe season sets in, and hope there are nearly double this number in the park. Since Idaho has forbidden the killing of buffalo . . . I have strong hopes . . . protect them from further slaughter by poachers."</p> <p>The section containing instructions to stations recognizes known buffalo haunts as: Mirror and Lamar, Hayden Valley, and the Firehole area.</p>
Soda Butte Station Record	19 Feb. 1898	reports wild buffalo
Morrison (1897-98)	Feb. 1898	<p>refers to Mirror Plateau "across to Broad Cr up it to hot springs near Fern Lake . . . Ponuntpa Springs to look for buffalo. Found numerous signs of buffalo all around the spring and on both sides of Sour Cr. after followed them down Sour Cr. to where a hot creek came down from a hot mountain on the north which they went up, and a close examination of the trail . . . [the trail was not made in single file but band was spread out] I estimate the band as follows 4 calves, 8 bulls, about 8 to 9 cows, but think some of the signs which I took for cow signs may have been 2 yr. old bulls. In all 21 head. Ponuntpa Springs is an ideal wintering place for the band which is there as there is no snow</p>

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Source	Date	Report
	11 April 1898	to speak of on the flat which is about a mile long and 3/4 wide and is covered with hot springs and hot creeks . . . "sign, estimate of 3, 4 miles north of the Upper Basin, Firehole area
Lake Station Record	21 June 1898	old sign—hot formations on Mary Mt.
Morrison (1897-98)	July 1898	"head of Pelican Cr went west to a small creek that flows in to Broad Cr . . . down Broad Cr about 2 miles thence NE. to hot springs on Shallow Cr up Shallow Cr to Wapiti Lake thence east to camp. Saw signs of 3 buffalo fresh 2 on the small creek that flows into Broad creek and one at Wapiti Lake."
	7 July 1898	"left . . . head of Pelican Cr went down it 5 miles made camp . . . went over to Fern Lake around it to head of Sour Cr down it then followed buffalo trail fresh over ridge to Broad Cr, up it to Fern Lake and on to Tern Lake . . . to camp. Saw one buffalo jumped 5 buffalo near ford of Broad Cr followed them to Fern Lake where we saw the one was on one of the heads of Sour Cr, an old bull. Around Ponuntpa Springs there were fresh signs of the band I saw there last winter."
	8 July 1898	5-6 buffalo wintered near forks of Pelican Cr., fresh signs
Lake Station Record	27 July 1898 14 Aug. 1898	one bull buffalo on top of Mary Mt, buffalo signs near headwaters of Raven Cr. (Pelican area) supposed to have been made within the last 20 days—quite a bunch of buffalo hair was found at outlet of White Lake
Morrison (1897-98)	12 Sept. 1898 13 Sept. 1898	signs 1 bull 6 mi from W boundary West Boundary headed for Summit Lake "3 m. east of bound. near a little spring saw where 5 buffalo had bedded over night, probably 2 bull a yearling and 2 cows."

# 132 Bison of Yellowstone National Park

Source	Date	Report
Whittaker (1897-99)	30 Sept. 1898	a trip was made up the Lamar to Cold Cr. and Mist Cr., over the divide to the head of Willow Cr. (Mirror Plateau area) and down Raven Cr., up to Pelican, to Broad Cr. and return to Pelican "will make special report on buffalo"
Morrison (1897-98)	10 Oct. 1898	Mirror Plateau area "fresh trail of 2 buffalo at head of Willow Cr. they came down Mist Cr. to the mouth . . . evidently a cow and a yearling from the tracks . . ."
Whittaker (1897-99)	12 Oct. 1898	refers to Mirror Plateau area "but after riding around the entire summer range i could not find any sign of them met Scout Morrison . . . presume they have all left their summer range on Flint and moved to either the head of Pelican Creek or Willow Creek where i saw some sign of them on my last trip . . ." (see date of 30 September 1898)
Burgess (1898-99)	18 Oct. 1898	Bechler area one, track
	19 Oct. 1898	"went to [Bechler] River saw 2 year old buffalo tracks . . ." "tracks of about 6 B They had been made 6 or 7 days ago."
	20 Oct. 1898	Firehold to Fountain "saw the Buffalos had been going along the river to the L[one] Star Geyser."
	10 Nov. 1898	Trout Cr. to head of Nez Perce Cr. "I found two Buffalo tracks one Bull and cow"
	13 Nov. 1898	"Then to East Fork of Pelican, where I saw the tracks of one buffalo."
	23 Nov. 1898	east side of Hayden Valley "Went East to Forest Springs. found old signs of Buffallos . . . to worm formation at head of Moss Creek. found some fresh Buffallo tracks going South . . . and down in sour creek where there is quite an opening there I found where 4 Buffalos had bedded the night before. from there I went to . . . Cotton grass and Sour Creek I saw 2 old Bulls one laying down they were very wild, and ran back toward sour creek."

Source	Date	Report
Supt. Annual Report (1898)	1898	estimates 50 yet in the park "This is about the only wild herd in the United States, and steps should be taken to prevent the extermination of this herd from the evils of inbreeding . . ."
Burgess (1898-99)	10 Jan. 1899	refers to Mirror Plateau area "up East forks of Estringent [Astringent Creek] to Head of Bluff Creek. Then to White Lake. I saw two Buffalos and a Great Many tracks. then went to Tern Lakes on the East side of the lake saw four Buffalos Then we went to Fern Lake. Saw 3 Buffaloes on the northwest End of Lake."
	11 Jan. 1899	"went up middle Estringent, over White Lake to head of Sour Creek, on this Creek I saw 15 Buffalos 12 old one and 3 calfs. went down sour creek . . . On this same trip, no sign was found in Hayden Valley."
	6 March 1899	"... 2 Buffalo . . . wintering on snake river."
	9 April 1899	"went to Estringent Cabin"
	10 April 1899	"I looked for the Buffalos. saw 20"
	14 April 1899	"went to Trout Creek one buffalo on Crater Hill"
	15 April 1899	"went to Fountain 5 Buffalos on Central Plateau"
Whittaker (1897-99)	12 May 1899	"saw one Buffalo near the Base of Hell-Roaring Mountain about a 4 year old . . ."
Lake Station Record	1 June 1899	buffalo sign at Mary Mt.
Whittaker (1897-99)	15 Aug. 1899	"to the headwaters of Deep Creek and Flint creek on the mirror plateau to look for the Buffalo. could not see any but found numerous sign . . ."

# 134 Bison of Yellowstone National Park

Source	Date	Report
Holt (1899-1901)	23 Sept. 1899	Snake River to Lake
	8 Oct. 1899	"fresh signs of two buffalo . . ."
	26 Nov. 1899	"Buffalo passed within sight of camp . . ." (Thorofare area) Ponuntpa area, Mirror Plateau "no fresh signs of Buffalo. found skeleton of calf."
Supt. Annual Report (1899)	1899	"it is not known how many there are left or whether or not they are increasing. I shall try and find out this winter as to their number. One of the scouts saw twenty-six last spring, and signs were seen of others. It is probable that there are fifty or more."
Supt. Annual Report (1900)	1900	"Twenty-nine head of buffalo were counted by scouts last winter, and there were possibly 10 more in the park that were not seen. Unless stations are located near the two southern corners of the reservation and the force of scouts increased the buffalo will be exterminated in a few years. With that addition to the facilities for protection they can be preserved and will increase."
Supt. Annual Report (1901)	1901	"it has been impossible . . . to ascertain accurately the number of buffalo . . . but . . . as soon as the snow falls, . . . The buffalo are now protected by the laws of Wyoming, Idaho, and Montana, and it is now possible that the small herd remaining in the park may increase, though it may be necessary to introduce some new blood in this herd, and possibly it may be well to start an entirely new one and to keep it under fence, turning the animals loose gradually as the herd increases. From what I can hear I do not believe that there are more than 25 buffalo left in the park." (One bull was killed in Jackson Hole.)
Lake Station Record	8 Dec 1902	patrolled to Pelican Country, 1 buffalo

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Bison Reports Prior to 1903 135

Source	Date	Report
Supt. Annual Report (1902)	1902	<p>"In addition to the large corral that has been constructed near the Mammoth Hot Springs, a small corral . . . on Pelican . . . to capture therein the few remaining buffalo . . . During the past winter . . . 22 of these animals on the head of Pelican Creek, and there are probably a few more that we were unable to find. This herd is exceedingly wild, and will probably never increase in size, and may possibly die out completely. It is thought that we can catch up some of the young. . .</p> <p>. . .</p> <p>"It is our intention to feed and handle the new herd of buffalo in the same manner as domestic cattle. . ."</p>

## Appendix III

## REPORTS OF WILD BISON 1903-19, YELLOWSTONE NATIONAL PARK.

Source	Date	Report
Lake Station Record	19 Jan. 1903	returned from Pelican 15 buffalo
	15 Feb. 1903	Pelican country 1 buffalo (main valley)
	26 Feb. 1903	from Pelican 19 buffalo
	24 Mar. 1903	from Pelican seen 17 buffalo
	25 Mar. 1903	Pelican 19 buffalo
	12 May 1903	"from Pelican Country . . . Had 2 Buffalo bull calves on toboggan drawn by dogs. Saw 16 old buffalo and 3 calves."
Supt. Annual Report (1903)	spring 1903	2 calves captured from wild herd
Lake Station Record	4 April 1904	located one buffalo at the hay stack (Pelican)
	end April	Scouts—Pelican Valley—"seeing 11 Buffalo 5 cows and 6 bulls no calves saw 6 dead ones"
Superintendent's Journal, 1903-21	6 May 1904	party that went out for buffalo calves re- port finding as follows . . . 11 live buffalo 5 dead buffalo—4 old ones and 1 yearling (additional report of one old bull dead between Lake and Thumb refers to one of the three Goodnight bulls which was turned out)
	18 May 1904	party returns, having captured one female calf on the head of Sour Creek; they saw twelve live buffalo; men at Canyon station saw two in Hayden Valley
Supt. Annual Report (1904)	spring 1904	remnant located on the head of Pelican Creek. "three calves have been caught up from the wild herd . . . Two of these are males and one is a female." (the two males were those caught the previous year)
Supt. Annual Report (1905)	1905	"now about 30 of these animals left, . . . on the head of Pelican Creek."
Supt. Annual Report (1907)	probably summer	sign of 15, Mirror Plateau and Specimen Ridge; signs of 6, Madison Plateau

Source	Date	Report
	Aug. 1907	4 seen in Hayden Valley total estimated to be 25
Scout Monthly Reports (1908)	1 April 1908	2 bull buffalo, Pelican Valley (near Raven Creek)
	13 April 1908	followed buffalo trail up Lamar to mouth of Mist Creek, saw 10 buffalo, 2 of them yearling calves
	16 April 1908	sign as far down the Lamar as Miller Creek where buffalo had been feeding
	13 July 1908	9 including 1 calf on upper Lamar
	7 Sept. 1908 (approx.)	"Patrolled west to Buffalo Lake, then south to 10 miles . . . saw . . . signs of buffalo" (southwest boundary)
	16 Sept. 1908	patrolled northeast to Mist Creek and camped. 18 miles Saw 20 wild buffalo (apparently at the Mushpot-Mudkettle area on Pelican Creek)
	9 Oct. 1908	11 seen (on trip through Willow-Mist- Upper Pelican Creeks of the Mirror Plateau)
	11 Oct. 1908	saw 7 head buffalo at Pelican Bridge (this report, as well as later ones for the im- mediate vicinity of Lake may refer to the Yellowstone Boat Co. animals)
Supt. Annual Report (1908)	1908	"Wild herd: Reports from scouts and patrols state that signs of two buffalo calves were seen on Mirror Plateau and one cow and calf were seen in Pelican Valley during the season. Scout Wilson reported that he saw 10 buffalo at the mouth of Mist Creek on Lamar River on April 13. On September 7 Scout McBride saw fresh tracks of 2 buffalo on Boundary Creek, near the western boundary, and on September 16 he saw 20 buffalo near the mush pots southwest of Pelican Cone in the valley of Pelican Creek. From these reports it is evident that the remnant of the original wild herd is gradually in- creasing in numbers."



# 138 Bison of Yellowstone National Park

Source	Date	Report
Skinner and Alcorn (1942-51)	1908	used a figure of 32 counted.
NOTE: On October 15, 1907, the Yellowstone Lake Boat Co. E. C. Waters corrals at Lake were torn down and the 8 buffalo within released. The Lake Station Record for the next two years and the scout diaries indicate that the various sightings of buffalo west of Lake Station, between Lake Station and Mud Geyser, and from Lake to Pelican Creek Bridge and east along the lakeshore for several miles were probably these animals. Reports of animals seen, or sign thereof, for these areas in 1908-09 are not included as part of this summary. Four or five buffalo were rounded up at Lake to be driven to headquarters in early December of 1909. North of Canyon, with average snow depths of 4 feet, the buffalo broke away. When last reported they had gone down into the Yellowstone Canyon to feed, apparently in the vicinity of Seven Mile Hole, where survival would be unlikely. Probably any left near Lake disappeared one by one without ever mingling with the wild herd. There was no indication that they ever joined the tame herd, of which very close track was kept at this time. The Boat Co. animals were of Goodnight plains bison stock, brought to the park in 1896, and kept in corrals (Timmons 1962).		
Lake Station Record	15 & 16 Jan. 1909	patrol to Astringent Creek and White Lake, buffalo sign seen
	23 March 1909	patrol to Astringent Creek cabin and White Lake, 3 buffalo seen
	24 March 1909	sign at the Mushpot area on Pelican Creek
Scout Monthly Reports (1909)	15 April 1909	4 buffalo near Yellowstone Lake, very thin (these may have been part of Boat Co. animals, 6 were driven across the Pelican Bridge in Nov. 1908)
	16 April 1909	Astringent Creek to Mist Creek and Lamar and to Willow Creek cabin, saw 3 buffalo near cabin
	17 April 1909	patrolled north to Soda Butte, saw 2 buffalo
Supt. Annual Report (1909)	April 1909	"Another small herd of 9 was seen near Pelican Creek in April." (this may be an error, representing the total of the above-listed trip)
Scout Monthly Reports (1909)	mid-May 1909	"trying to corral 9 wild buffalo near Cache Cr. We captured 1 buffalo bull calf"

Source	Date	Report
Supt. Annual Reports (1909)	May 1909	"A herd of 11 wild buffalo was seen on Cache Creek May 19, at which time a bull calf was caught . . ."
Anonymous File No. 21 & 22, 5/28/09	15 May 1909	lists 10 at the mouth of Cache Creek—2 large bulls, 7 cows, 1 calf
Supt. Annual Report (1909)	July 1909	"Signs were also seen in the southwestern part of the park in July of this year."
Lake Station Record	23 Dec. 1909	Buffalo signs seen at Squaw Lake (Pelican area), 23 buffalo seen near Pelican Springs
	13 Jan. 1910	buffalo signs 2 mi. west of Steamboat Sp. (Yellowstone Lake, north edge)
Scout Monthly Reports (1910)	February 1910	Soda Butte to Cache Creek and return, saw 5 buffalo and signs of buffalo.
Anonymous File No. 21 & 22, 3/2/10	23 Feb. 1910	29 buffalo seen on Pelican Creek (states group known not to contain the Boat Co. buffalo)
Supt. Annual Report (1910)	1910	"A herd of 29 wild buffalo was seen in Pelican Valley on February 23, and a small herd of 5 was seen on Cache Creek on February 3. One old bull died during the winter in the vicinity of Yellowstone Lake, . . ." (the one may have been from the Boat Co.)
Lake Station Record	9 March 1910	(Pelican Valley) "seen 20 of them"
	16 March 1910	from Park Point (Yellowstone Lake) to Pelican Creek, 6 buffalo
	17 March 1910	from Astringent Cabin to Lake, 21 buffalo
	30 June 1910	Lake Station to 14 mile post, Sylvan Pass Rd., saw 7 buffalo
Lake Station Record	17 Feb. 1911	patrol to Pelican Cr., 20 buffalo
Anonymous File No. 21 & 22, 3/14/11	Feb. ?	part of wild herd sighted recently, sure of 20, think 25 including some calves

# 140 Bison of Yellowstone National Park

Source	Date	Report
Lake Station Record Scout Monthly Reports (1911)	2 March 1911 28-30 April 1911	to Pelican Cabin, 25 buffalo from Signal Point (on Yellowstone Lake) north to Astringent Creek, saw 27 wild buffalo of which 2 were calves, traveled to Mist, Cold, and Willow Creek cabin N. to Lamar River, "sign of one wild buffalo"
NOTE: During June 1911, 4 bison were rounded up on the Madison and brought to Mammoth, in the mistaken belief that they were Yellowstone National Park animals. They were returned, including offspring, to their owners (Sherman) at Henry's Lake in June 1913 (Scout Reports and File No. 21 & 22).		
Nowlin (1912)	1911	comments droppings indicated buffaloes had ranged near Saddle Mountain and on Mist Creek and the upper Lamar River; plenty of old signs along Pelican Creek, at White Lake on the head of Sour Cr., and near the heads of Deep Creek.
Thumb Station Record	10 August 1911	"patrolled to K. W. & De L. C. Reg. 82-- 8 buffalo" (contrary to the Supt. Report, 1911, the 8 buffalo were probably seen at the Knotted Woods, southwest of Dryad Lake, rather than west of Thumb at DeLacy Creek)
Supt. Annual Report (1911)	1911	"The wild herd has been seen several times, usually in the Pelican Creek Valley. The largest number seen at any one time was 27. A patrol reported having seen 8 along the road, about 7 miles west of Thumb Station, on August 12." (error, see above)
Anonymous File No. 21 & 22 5/3/12 7/19/12	13 July 1912	48 (inc. 10 calves) on Raven Creek "Scouts McBride and Little . . . report having actually seen and counted 48 animals. They are not together in a herd, but are considerably scattered, mostly on Pelican Creek, Upper Lamar River and tributaries." count included 10 this year's calves; one additional large bull on the Pitchstone for a total of 49

Source	Date	Report
Scout Monthly Reports (1912)	6 July 1912	1 bull, signs of 1 more, Cache Cr. (may have been from tame herd)
	7 July 1912	sign of a small band, between Cache and Willow Creek
	8 July 1912	sign of 6, Willow Cr. (seen by another scout)
	9 July 1912	fresh sign, vicinity of Mist Cr.
	10 July 1912	1 bull, signs of others, Mist Creek.
	11 July 1912	fresh sign, Mist to Raven Creek. (one seen by another scout)
	12 July 1912	"patrolled county" (Mirror Plateau), saw 38: 25 cows, 3 bulls, 10 spring calves, one seen between Snake River and Aster Creek
	22 July 1912	saw buffalo signs on Proposition Creek.
Nowlin (1912)	22-30 July 1912	trip made on Specimen Ridge and Mirror Plateau, upper Lamar River, Saddle Mt., Miller and Cache Creeks; fresh sign cow & calf Upper Pelican, tracks and droppings at head of Raven Creek, about 10 days old saw about 10 at the head of Timothy Cr., followed them to the headwaters of Clover Creek where they joined others, "all were feeding quietly in an open park." total of 35: 7 bulls inc. 2 large ones, 13 cows, 7 yearlings, 8 young calves, fresh sign of two bulls on Timothy Creek total counted for trip: 39 "However, the summer range is so extensive and difficult to traverse that it would require a great deal of time and careful work to examine it thoroughly. . . . I have never seen buffaloes on the range so wary and difficult to locate as the wild ones in the Yellowstone Park. . . . As these buffalo winter around the warm springs . . . it seems reasonable to me that if undisturbed, they ought to gradually increase."
Scout Monthly Reports (1912)	20 Sept. 1912 (approx.)	2 buffalo seen between Cold Creek and the Lamar R.
	27 Sept. 1912	25 wild buffalo, vicinity of Saddle Mt.

## 142 Bison of Yellowstone National Park

Source	Date	Report
Supt. Annual Report (1912)	1912	"A special effort was made during the month of July to determine as nearly as possible the exact number of buffalo in the wild herd in the park. Forty-nine animals, including 10 this year's calves, were counted. . . . indicates that the herd is thriving beyond expectation."
Anonymous File No. 21 & 22 8/2/12	winter 1912-13	added note: "Men on Lake Station claim 53 winter 1912-13 but not officially reported."
Scout Monthly Reports (1913)	28 Feb. 1913 March (early)	saw 35 wild buffalo, trip from Yellowstone Lake outlet to Pelican cabin 1 bull, head of Mist Creek
Lake Station Record Scout Monthly Reports (1913)	17 March 1913 April	53 buffalo, patrol from Pelican cabin 1 bull, trip from Cache to Willow Creek on top of Miller Creek divide
Lake Station Record	30 May 1913	2 buffalo, patrol to Cub Creek
Scout Monthly Reports (1913)	5 Sept. 1913	20 buffalo, trip from Cold Creek to Frost Lake
Supt. Annual Report (1913)	1913	"No accurate count of the wild herd of buffalo was made, but scattering bands of them have been seen, and one party on patrol reports having seen 7 calves with a herd at a distance. It is believed that there has been some increase."
Scout Monthly Reports (1914)	September	sign seen, vicinity of Saddle Mt.
Supt. Annual Report (1914)	1914	"No particular effort was made to make an accurate count . . . but they have been seen in considerable numbers on several occasions, . . . increasing slowly."
Stevenson (1915-16)	4 Dec. 1915	"went up Pelican Creek and Raven Creek to count Buffalo. 4 found on Pelican Cr. 27 on Raven Cr 31 in all about 5 large bulls 6 yearlings 4 calves and the rest cows and young bulls."

Source	Date	Report
Supt. Annual Report (1915)	1915	"has not been practicable to get an accurate count . . ."
NOTE: Superintendents' Annual Reports for a few more years indicate wild herd numbers, which will not be included in this summary, as they may represent the addition of some escaped tame-herd members.		

## BISON POPULATION 1902-68.

[illegible]

Bison Population 1902-68										145
19	414	45	90	1	504	46				
20	440	17	61		501	17				
21	526	7	76		602	7				
22	578	56	69		647	56				
23	672	14	76		748	14				
24	753	13								
25	764	109	66		830	109				
26	866	23	65		931	23				
27	936	41	72		1008	41				
28	996	54	61	4	1057	58				
29	1092	106	17		1109	106				
30	1097	132	27		1124	132				
31	1182	120	10		1192	120				
32	1016	222								
33	985	207								
34	950	177								
35	830	264								
36	640	109	136		847	109	929			
37	456	17	188		674	17	756			
38	554	25	146		755	25	800			
39	582	67	157		811	67	850			
40	630	3	122		868	3	970			



[illegible]

61	212		169	488	869		
62	148	135			650	148	975
63	8	163			418	370	819
64	6	187			400	6	821
65	85	87	115	38	267	388	392 <sup>c</sup>
66	66	2	100	1	51	226	54
67	80	1	123	1	194	397	3
68	70	1	160	2	188	418	4

<sup>a</sup>Firehole only.

<sup>b</sup>Count made during reduction.

<sup>c</sup>Includes 38 natural mortality.

Actual counts exclude loss figures.

Counts are postreduction, precalif.

Losses are mostly reductions.

Counts before 1951-52 are ground unless marked with A. Beginning in 1951-52, all counts are aerial.

Changes have been made from previous tabulations (Skinner and Alcorn, 1942-51) according to more accurate information.

## Appendix V

## DATA ON FETAL SIZES COMPILED FROM TABULATION OF LATE JANUARY 1941 (SKINNER 1941).

Sex	No. Sampled	Size Range	% < 1 lb.	% 1-5 lb.	% 5-10 lb.	% 10-15 lb.	% 15-20 lb.	% > 20 lb.
Female	28	4 lb. 5 oz.-23 lb.	0	7	25	29	29	11
Male	46	6 oz.-23 lb.	7	7	33	22	26	7
Total Sample	74		4	7	30	24	27	8

## Appendix VI

KNOWN BISON MOVEMENTS TO AND BEYOND  
YELLOWSTONE NATIONAL PARK BOUNDARIES 1942-67.

	West Boundary		South Boundary		North Boundary		East Boundary	
	Pop. No. Mary Mtn.	No. out; location	Pop. No. Mary Mtn.	No. out; location	Pop. No. Lamar	No. out; location	Pop. No. L'mr-P'm.	No out; location
1942 Dec.								
1942-43 late winter								
1943 Aug. Sept.			100	1; 1½ mi. S of S. Gate 3; vicinity S. Gate	800 est.	150; near Lake Abundance		
1947 fall					300	31; Elk Cr.-Hellroaring area		
1948 late winter					313	68; Gardiner-Jardine		
1951 late Feb. March	640	1; Young Ranch 1; Gallatin highway			980 est.	6; near line, inside		
1955 Feb.	900 est.	3; Fall River Ridge			220 est.	8; Gardiner-Jardine		
1956 Mar.								
1957 Feb.	550 est.	6; Fall River Ridge			135 est.	10; Eagle Cr.		
1959 Feb.	400 est.	1; Birch Cr.			200 est.	1; Mol Heron Cr.		
1962 winter								
1963 winter	500 est.	94; Bechler Mtns. (in)						
1964 late winter summer fall	400 est.	1; Fall River Ridge 1; Fall River Ridge	400 est.	2; 7 mi. S. of boundary				
1965 Jan.	400 est.	1; Fall River Ridge						
1965 Mar. May July	400 est.	23; Bechler Mtns. (in) 2; Fall River Ridge 2-3; Cave Falls area 1; Grassy Lake 2; West Entr. to Henry's Lake to Ennis					150 est.	Some (bulls) Upper Timber Cr.
Aug.			200 est.	1; S. Gate				
1967 late winter fall	200 est.	2; ♀ calved, 1 ♂ Porcu- pine-Warm River cow + calf Porcu- pine						
Often-summer Every year-summer								
								A few

NOTE: Refuge Manager Vivion, Red Rock Lake National Wildlife Refuge, states (1968 pers. comm.) there are a few wild bison in that area from ranched herds of some years ago. Occasional west side reports may not actually be Yellowstone bison.

## Appendix VII

## OCCURRENCE OF GRASSES AND GRASSLIKE PLANTS IN BISON USE AREAS.

Type of Site	Species	F	HV	Location		
				L <sup>a</sup>	P	UL <sup>b</sup>
Pond and creek edges, wet bottomlands	Sedge ( <i>Carex</i> spp.)		X			
	<i>C. aquatilis</i>	X		X	X	X
	Beaked Sedge	X		X	X	X
	Nebraska Sedge	X		X		
	Woolly Sedge			X		
	Western Bulrush			X	X	
Swales, wet.	Sedge ( <i>Carex</i> spp.)	X	X		X	
	<i>C. acuta</i>			X	X	
	<i>C. aperta</i>					X
	<i>C. aquatilis</i>			X		
	<i>C. platylepis</i>				X	
	<i>C. roynoldii</i> n				X	
	<i>C. xerantica</i>					X
	Beaked Sedge			X		
	Silvertop Sedge					X
	Smallwing Sedge					X
	Woolly Sedge			X		
	Spike-sedge					X
	Horsetail	X		X	X	
	Wire Rush	X	X	X	X	
	Grass species	X	X	X	X	
Moist meadows	Meadow Bailey					X
	Sweetgrass			X		
	Timothy			X		
	Tufted Hairgrass	X	X	X	X	X
	Sedge ( <i>Carex</i> spp.)	X	X			
	<i>C. acuta</i>				X	
	<i>C. alrovastachya</i>	X			X	
	<i>C. platylepis</i>				X	
	<i>C. roynoldii</i>				X	
	Smallwing Sedge	X		X		
	Valley Sedge			X		
	Woolly Sedge			X		
	Horsetail	X		X	X	
	Long-styled Rush	X				
	Wire Rush	X		X	X	
	Grass species	X	X	X	X	
	Alpine Foxtail				X	
	Bluegrass	X	X	X	X	
	Canby Bluegrass			X		

Type of Site	Species	F	HV	Location		UL <sup>b</sup>
				L <sup>a</sup>	P	
Moist upland sites	Cusick Bluegrass			X		
	Kentucky Bluegrass	X				
	Giant Wild-rye			X		
	Sweetgrass			X	X	
	Timothy			X		
	Tufted Hairgrass	X	X	X	X	
	Grass species	X	X		X	
	Bluegrass	X	X	X	X	
	Giant Wild-rye			X		
	Idaho Fescue	X	X	X	X	
	Meadow Barley		X			
	Mountain Brome	X	X	X		
	Columbia Needlegrass			X		
	Richardson Needlegrass			X		
	Timber Oatgrass			X		
Drier upland sites	Timothy	X				
	Sedge ( <i>Carex xerantica</i> )			X	X	
	Smallwing Sedge	X				
	Grass species	X			X	
	Bluegrass	X	X		X	
	Canby Bluegrass			X		
	Cusick Bluegrass			X		
	Kentucky Bluegrass	X				
	Sandberg Bluegrass			X		
	Idaho Fescue	X	X	X	X	
	Junegrass	X	X	X		
	Needle-and-Thread			X		
	Needlegrass			X	X	
	Columbia Needlegrass		X			
	Richardson Needlegrass		X			
	Tufted Hairgrass				X	
	Wheatgrass	X			X	
	Bluestem Wheatgrass			X		
	Bluebunch Wheatgrass			X		
	Slender Wheatgrass		X			
	Thickspike Wheatgrass		X			
Mountain herbland	Sedge ( <i>Carex aperta</i> )					X
	<i>C. raynoldsii</i>					X
	<i>C. xerantica</i> )					X
	Ovalhead Sedge					X
	Smallwing Sedge					X
	Slender Rush					X
	Wire Rush					X

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Type of Site	Species	F	HV	Location		UL <sup>b</sup>
				L <sup>a</sup>	P	
	Bluegrass					X
	Alpine Bluegrass					X
	Canby Bluegrass					X
	Idaho Fescue					X
	Meadow Barley					X
	Mountain Brome					X
	Needlegrass					X
	Purple Onion Grass					X
	Timothy					X
	Alpine Timothy					X
	Slender Wheatgrass					X
	Tufted Hairgrass					X
Drier mountain sites	Long-styled Rush					X
	Bluegrass					X
	Idaho Fescue					X
	Junegrass					X
	Timber Oatgrass					X
Subalpine meadows	Sedge ( <i>Carex nova</i>					X
	<i>C. platylepsis</i>					X
	<i>C. raynoldsii</i> )					X
	Hepburn Sedge					X
	Smallwing Sedge					X
	Bluegrass					X
	Alpine Bluegrass					X
	Timberline Bluegrass					X
	Idaho Fescue					X
	Meadow Barley					X
	Alpine Timothy					X
	Tufted Hairgrass					X

F = Firehole

HV = Hayden Valley

L = Lamar

P = Pelican

UL = Upper Lamar

<sup>a</sup>Data is more complete for Lamar.

<sup>b</sup>All wet sites are at higher elevations.